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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/070,721	07/16/2002	Philip Hall	THC.P.US0003	9695
7590 01/10/2006			EXAMINER	
Andrew B Morton Renner Kenner Greive BobakTaylor & Weber First National Tower 4th Floor Akron, OH 44308			CHORBAJI, MONZER R	
			ART UNIT	PAPER NUMBER
			1744	

DATE MAILED: 01/10/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	Application No. 10/070,721	Applicant(s) HALL, PHILIP	
	Examiner MONZER R. CHORBAJI	Art Unit 1744	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 31 October 2005.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-4 and 6-20 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-4 and 6-20 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 16 July 2002 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

## DETAILED ACTION

**This Non-final action is in response to the Amendment received on 10/31/2005**

### ***Double Patenting***

1. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. See *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

2. A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent is shown to be commonly owned with this application. See 37 CFR 1.130(b).

3. Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

4. Claims 1-3 and 6-7 of Application No. 10/070,721 are provisionally rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-3, 6-7 and 14 of copending Application No. 10/242,848. Although the conflicting claims are not identical, they are not patentably distinct from each other because of the following:

Claim 1 of Application No. 10/070,721 fully suggests claim 1 of Application No. 10/242,848.

Claims 6 and 14 of Application No. 10/070,721 fully suggest claim 6 of Application No. 10/242,848.

Claims 2-3 and 7 of Application No. 10/070,721 disclose the features of claims 2-3 and 7 of Application No. 10/242,848.

This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

***Claim Rejections - 35 USC § 103***

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

7. Claims 1-4 and 6-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Pellin (U.S.P.N. 4,102,654) in view of Liebeskind et al (U.S.P.N. 6,632,805) and further in view of Doushita et al (U.S.P.N. 6,576,344).

With respect to claims 1, 6 and 14, the Pellin reference discloses a method (columns 2-3) and an apparatus (1) for purifying air including the following: withdrawing air from an enclosed space (col.3, lines 56-63) through an air extraction vent (2) by using means (6, fan system), ducting for connecting all the components (unlabeled duct lines), passing the air over surfaces impregnated with an antimicrobial agent (col.2, lines 31-34, the surfaces of filter 5), through UV radiation section (col.2, lines 53-55, an

ultraviolet illumination section), and returning the air to the enclosed space (3). In addition, the apparatus includes an airflow conditioning section (5). However, with respect to claims 1 and 6, the Pellin reference fails to disclose coating the surfaces of the ultraviolet radiation section with a non-volatile antimicrobial agent and with respect to claim 14, the Pellin reference fails to teach coating the surfaces of the ultraviolet radiation section and the air flow conditioning section with a non-volatile antimicrobial agent. With respect to claims 1, 6 and 14, the Liebeskind reference, which is in the art of designing antimicrobial coatings (abstract), teaches incorporating antimicrobial organosilanes, for example, 3-(trimethoxysilyl)-propyl dimethyloctadecyl ammonium chloride (col.32, lines 65-67 and col.33, lines 1-7, this compound is considered to be the non-volatile antimicrobial agent) into coating applications that includes filters (i.e., air flow conditioning section, col.33, lines 24-27). As a result, it would have been obvious to one having ordinary skill in the art at the time the invention was made to substitute the antimicrobial agent disclosed in the Pellin reference by the non-volatile antimicrobial agent as taught by the Liebeskind reference since such an agent is non-toxic, non-flammable, simple, economical and operable over a wide variety of pH ranges (col.5, lines 7-10).

With respect to claims 1, 6 and 14, the Liebeskind reference fails to teach coating surfaces of the ultraviolet section with a non-volatile antimicrobial agent. The Doushita reference, which is in the art of designing photocatalytic multi-layer coats, teaches incorporating organosilanes (this compound is considered to be the non-volatile antimicrobial agent) into an adhesion prevention layer (col.14, lines 41-67, col.15, lines

2-15, lines 19-52 and col.17, lines 34-56). Thus, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the method and apparatus of the Pellin reference by coating the ultraviolet section with an organosilanes layer as taught by the Doushita reference since organosilanes layer will decompose by ultraviolet light and in the final stage, a monomolecular-equivalent layer of SiO<sub>x</sub> will be formed to maintain the anti-soiling property (col.17, lines 51-56).

With respect to claims 2-3, 7-8 and 15-18, the Pellin reference teaches the following: filtering the withdrawn air (4), causing turbulence to the air flow prior to passing the withdrawn air through ultraviolet radiation section (6), a pre-sterilization section (unlabeled region that include parts 4-6 and 7', 7''), the airflow conditioning includes a filter (unlabeled section includes 5), the filter includes natural fibers (4 and col.2, lines 30-31), airflow conditioning section includes a fixed, multi-bladed directional fan (6) and the airflow conditioning section further includes planar members (intrinsic edges of filter 5) positioned at an angle (90 degrees) to the air flow (perpendicular to 5).

With respect to claims 4, 9-13 and 19-20, the Pellin reference fails to teach coating internal surfaces of the filter or some of the internal surfaces of the pre-sterilization section with a quaternary amine group in a silane such as 3-(trimethoxysilyl)-propyl dimethyloctadecyl ammonium chloride; however, the Liebeskind reference teaches coating surfaces of a filter with 3-(trimethoxysilyl)-propyl dimethyloctadecyl ammonium chloride (for example, a quaternary amine group in a silane, col.32, lines 65-67 and col.33, lines 1-7) and further coating surfaces of HVAC systems (col.36, lines 32-35) such that the pre-sterilization section of the Pellin

reference is included in this teaching. Clearly, it would have been obvious to one having ordinary skill in the art at the time the invention was made to substitute the antimicrobial agent disclosed in the Pellin reference by the 3-(trimethoxysilyl)-propyl dimethyloctadecyl ammonium chloride compound as taught by the Liebeskind reference since such an antimicrobial compound is non-toxic, non-flammable, simple, economical and operable over a wide variety of pH ranges (col.5, lines 7-10).

### ***Response to Arguments***

8. Applicant's arguments filed on 10/31/2005 have been fully considered but they are not persuasive.

On page 6 of the Remarks section, applicant argues that, "The '805 patent does not teach or suggest that the organosilane coating can be used as a liquid coating on a wet filter in the manner required by the '654 patent." The examiner disagrees. The Liebeskind reference teaches in column 35, lines 60-65 coating by submersing, e.g., dipping the filter structure into the liquid containing organosilane. Both filters of the Pellin reference and the Liebeskind reference are wet after the filter of the Pellin reference has been dipped in water or bactericidal liquid and after the filter of the Liebeskind reference has been dipped into the liquid containing organosilane. Clearly, both references are combinable.

On page 6 of the Remarks section, applicant argues that, "The '654 patent teaches that the antimicrobial agent is a liquid. The '805 patent teaches that the antimicrobial agent is dried." The examiner disagrees since both filters of the Pellin reference and the Liebeskind reference are wet after the filter of the Pellin reference has

been dipped in water or bactericidal liquid and after the filter of the Liebeskind reference has been dipped into the liquid containing organosilane (col.5, lines 60-65).

On page 6 of the Remarks section, applicant argues that, "Applicant maintains that the modification described by the examiner would change the principle of operation of the ionizer of the '654 patent." The examiner disagrees since both the Pellin reference and the Liebeskind reference coat the filters by wetting (i.e., dipping) into liquids. As a result, the teachings of both references leads to wet filters and the principle of operation is not changed. In addition, the Pellin reference teaches that filter 5 can either be impregnate with water or bactericidal liquid and that is the reason it is called wet (col.2, lines 32-33). By substituting the bactericidal liquid with the non-volatile antimicrobial liquid agent of the Liebeskind reference, the principle operation of the filter remains the same since the coat of the Liebeskind reference includes an antimicrobial agent. See column 3, lines 19-20, where the Pellin reference teaches that the function of filter 5 is antibacterial.

On page 7 of the Remarks section, applicant argues that, "However, applicant respectfully submits that the '344 patent is not analogous art and thus is not properly relied upon in a rejection of the instant claims." The examiner disagrees since the Doushita reference like the instant claims is trying to address the problem associated with placing organosilane compounds in close proximity to ultraviolet lamps (photocatalytic), while making sure that the properties of such compounds are maintained regardless whether it results in anti-soiling or anti-fogging or air-purification or some other property.



On page 8 of the Remarks section, applicant argues that, "Further evidence that the '344 patent is non-analogous to applicant's invention is that the '344 patent does not fall within the same international patent classification scheme as the instant application." The examiner disagrees since even if the international patent classification system does not place the Doushita reference and the instant application in the classification art area, the fact that the Doushita reference and the instant claims are trying to address the same problem associated with placing organosilane compounds in close proximity to ultraviolet lamps (photocatalytic), while making sure that the properties for intended uses of such compounds remain unchanged, still present both as analogous art.

***Conclusion***

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to MONZER R. CHORBAJI whose telephone number is (571) 272-1271. The examiner can normally be reached on M-F 6:30-3:00.
10. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, RICHARD D. CRISPINO can be reached on (571) 272-1226. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Art Unit: 1744

11. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

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